

CLAIMS

1. A method for forming light beams onto a disc for a plurality of disc formats, comprising:

5 directing a main beam onto the disc; and

directing a side beam onto the disc with a displacement from the main beam, the displacement being a LCM (least common multiple) distance of respective track pitches for the disc formats.

10 2. The method of claim 1, wherein the LCM distance is within a respective tolerance range from a respective integer multiple of a respective track pitch for each of the disc formats.

15 3. The method of claim 2, wherein the LCM distance is a minimum of possible values.

4. The method of claim 1, wherein the LCM distance is a respective odd integer multiple of a respective track pitch for each of the disc formats.

20 5. The method of claim 1, further comprising:

directing another side beam onto the disc on another side of the main beam with substantially the same displacement from the main beam.

6. The method of claim 5, further comprising:

25 using the main and side beams reflected from the disc for generating a tracking error signal.

7. The method of claim 5, further comprising:

30 using the main and side beams reflected from the disc for generating a DPP (differential push pull) error signal.

8. The method of claim 5, further comprising:

using only the main beam reflected from the disc for generating an error signal when any of the side beams is outside of tracks of the disc.

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9. The method of claim 1, wherein the main and side beams are each directed onto a separate one of a land or a groove on the disc.

10. The method of claim 1, further comprising:

10 generating the main and side beams with light from a laser diode passing through a grating; and

adapting at least one of a pitch of the grating and a distance of the laser diode to the grating to affect the displacement.

15 11. A system for forming light beams onto a disc for a plurality of disc formats, comprising:

a main beam directed onto a disc; and

a side beam directed onto the disc with a displacement from the main beam, the displacement being a LCM (least common multiple) distance of respective track pitches
20 for the disc formats.

12. The system of claim 11, wherein the LCM distance is within a respective tolerance range from a respective integer multiple of a respective track pitch for each of the disc formats.

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13. The system of claim 12, wherein the LCM distance is a minimum of possible values.

14. The system of claim 11, wherein the LCM distance is a respective odd integer
30 multiple of a respective track pitch for each of the disc formats.

15. The system of claim 11, further comprising:

another side beam formed onto the disc on another side of the main beam with substantially the same displacement from the main beam.

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16. The system of claim 15, further comprising:

a tracking servo that uses the main and side beams reflected from the disc for generating a tracking error signal.

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17. The system of claim 15, further comprising:

a tracking servo that uses the main and side beams reflected from the disc for generating a DPP (differential push pull) error signal.

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18. The system of claim 15, further comprising:

a tracking servo that uses only the main beam reflected from the disc for generating an error signal when any of the side beams is outside of tracks of the disc.

19. The system of claim 11, wherein the main and side beams are each directed onto a separate one of a land or a groove on the disc.

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20. The system of claim 11, further comprising:

a laser diode for generating light and a grating for splitting the light into the main and side beams,

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wherein a pitch of the grating and a distance of the laser diode to the grating are adapted to affect the displacement.

21. A system for forming light beams onto a disc for a plurality of disc formats, comprising:

means for directing a main beam and a side beam onto a disc; and

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means for displacing the side beam from the main beam with a LCM (least

common multiple) distance of respective track pitches for the disc formats.

22. The system of claim 21, wherein the LCM distance is within a respective tolerance range from a respective integer multiple of a respective track pitch for each of
5 the disc formats.

23. The system of claim 22, wherein the LCM distance is a minimum of possible values.

10 24. The system of claim 21, wherein the LCM distance is a respective odd integer multiple of a respective track pitch for each of the disc formats.